

Linux based 3GPP GSM/WCDMA

Service API Requirements

Revision History

Revision	Comment	Reviewer	Editor	Date
0.1.0	Initial		Jim Rayner	19 th May 2006
0.1.1	CAT/SAT/USAT addition		Jim Rayner	24 th May 2006

0	Introduction	4
0.1	Purpose and scope	4
0.2	Assumptions	4
0.3	Abbreviations	4
0.4	References	5
1	Overview of requirements	6
1.1	How to use this document	6
2	Requirements	7
2.1	Circuit-Switched (Voice) Communication Service	7
2.2	Messaging Communication Service	9
2.3	Mobility Management Service	10
2.4	Packet-Switched (Data) Communication Service	11
2.5	Equipment Service	12
2.6	Integrated Circuit Card Service	12
2.7	Card Application Toolkit Service	14
	Appendix A	15
A.1	Application Requirements	15

0 Introduction

0.1 Purpose and scope

The purpose of this document is to define CELF GSM/WCDMA application service API requirements for a Linux based multimedia mobile-phone as detailed by the CE Linux Forum Reference Architecture [CELF_MRR_RA].

This document does not detail baseband requirements or any functionality that must be provided by the baseband other than that required by the service APIs to conform with network operator requirements.

This document does not detail user interface or application specific requirements except where they are deemed to require specific information or interaction with the service APIs.

0.2 Assumptions

Further requirements will become apparent through consultation with network operators and detailing of the multimedia phone reference tier.

It is assumed that the application domain will become the main focus for all phone service functionality, leading to a gradual migration of traditional baseband centric layer 3 requirements into the application layers.

It is assumed that application specific requirements will be part of future CELF or implementer specific documents. Known application requirements are included in the Appendix for reference.

0.3 Abbreviations

Abbreviations used in the present document are listed in 3GPP TR 21.905 v4.5.0 and CELF_MPP_Preface vFR1

0.4 References

Document	Title
3GPP TS 21.905 v4.5.0	Vocabulary for 3GPP Specifications
3GPP TS 22.001 v4.3.0	Principles of circuit telecommunication services supported by a Public Land Mobile Network (PLMN)
3GPP TS 22.002 v4.2.0	Circuit Bearer Services (BS) supported by a Public Land Mobile Network (PLMN)
3GPP TS 22.003 v4.3.0	Circuit Teleservices supported by a Public Land Mobile Network (PLMN)
3GPP TS 22.004 v4.3.0	General on supplementary services
3GPP TS 22.011 v4.8.0	Service accessibility
3GPP TS 22.016 v4.2.1	International Mobile Equipment Identities (IMEI)
3GPP TS 22.030 v4.1.0	Man-Machine Interface (MMI) of the User Equipment (UE)
3GPP TS 22.038 v4.3.0	USIM Application Toolkit (USAT/SAT); Service description; Stage 1
3GPP TS 22.042 v4.2.1	Network Identity and Time Zone (NITZ) service description; Stage 1
3GPP TS 22.060 v4.4.0	General Packet Radio Service (GPRS); Service description; Stage 1
3GPP TS 22.072 v4.0.0	Call Deflection (CD); Stage 1
3GPP TS 22.081 v4.1.0	Line Identification supplementary services; Stage 1
3GPP TS 22.082 v4.2.0	Call Forwarding (CF) Supplementary Services; Stage 1
3GPP TS 22.083 v4.1.0	Call Waiting (CW) and Call Hold (HOLD) supplementary services; Stage 1
3GPP TS 22.084 v4.1.0	MultiParty (MPTY) supplementary service; Stage 1
3GPP TS 22.085 v4.1.0	Closed User Group (CUG) supplementary services; Stage 1
3GPP TS 22.086 v4.0.0	Advice of Charge (AoC) supplementary services; Stage 1
3GPP TS 22.087 v4.0.0	User-to-user signalling (UUS); Stage 1
3GPP TS 22.088 v4.1.0	Call Barring (CB) supplementary services; Stage 1
3GPP TS 22.090 v4.0.0	Unstructured Supplementary Service Data (USSD); Stage 1
3GPP TS 22.091 v4.0.0	Explicit Call Transfer (ECT) supplementary service; Stage 1
3GPP TS 22.093 v4.0.0	Completion of Calls to Busy Subscriber (CCBS); Service description, Stage 1
3GPP TS 22.096 v4.0.0	Name identification supplementary services; Stage 1
3GPP TS 22.101 v4.10.0	Service aspects; Service principles
3GPP TS 22.105 v4.3.0	Services and service capabilities
3GPP TS 22.135 v4.2.0	Multicall; Service description; Stage 1
3GPP TS 27.005 v4.2.1	Use of Data Terminal Equipment - Data Circuit terminating Equipment (DTE-DCE) interface for Short Message Service (SMS) and Cell Broadcast Service (CBS)
3GPP TS 27.007 v4.6.0	AT command set for User Equipment (UE)
3GPP TS 51.010-1 v4.9.0	Mobile Station (MS) conformance specification; Part 1: Conformance specification
3GPP TS 51.011 v4.14.0	Specification of the Subscriber Identity Module - Mobile Equipment (SIM-ME) interface
ETSI TS 102 221 v4.15.0	Smart cards; UICC-Terminal interface; Physical and logical characteristics (Release 4)
ETSI TS 102 223 v4.13.0	Smart cards; Card Application Toolkit (CAT) (Release 4)
CELF_MPP_Preface vFR1	Linux based 3G Specification Multimedia Mobile Phone API Preface
CELF_MPP_RA vFR1	Linux based 3G Specification Multimedia Mobile Phone API Reference Architecture

3GPP specifications are accessible via the specification matrix at
<http://www.3gpp.org/ftp/Specs/html-info/SpecReleaseMatrix.htm>

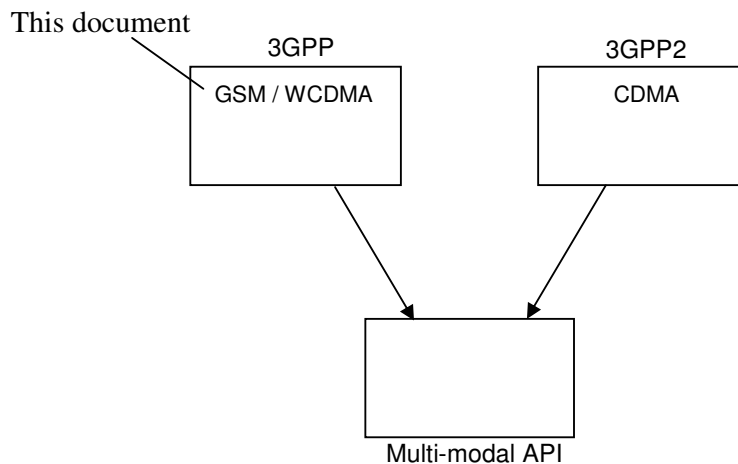
ETSI specifications are accessible via <http://pda.etsi.org/pda>

CELF documents are accessible via
<http://tree.celinuxforum.org/CelfPubWiki/MobilePhoneProfileWorkingGroup>

1 Overview of requirements

This document defines the service API requirements of 3GPP and network operators.

The short term aim is to unify these requirements with 3GPP2, TTA/EIA and other standards body requirements, to support a single set of service APIs for GSM, CDMA and WCDMA.



This document is based on 3PP Release 4 specifications.

1.1 How to use this document

For the purpose of easy of identification the requirements are labeled with

M - Mandatory

- Mandatory capability for type approval/general conformance testing
- Required functionality for a 3G multimedia mobile phone

R - Recommended

- Optional 3GPP capability
- Perceived requirement by one or more network operators

O - Optional

- Optional 3GPP capability
- Generally not use by network operators
- Potential for future development

The four identification letters allow requirements traceability; from implementation, to service API document and back to this requirements document.

2 Requirements

2.1 Circuit-Switched (Voice) Communication Service

Circuit Switched					
ID	Name	Req	Reference	Section	Description
CSDV	Dial Voice	M	22.001 22.003 22.030 27.007 51.010-1	D.2 A.1.1 6.4.2.1 6.2 11.1.2	Teleservice TS11 Dial command D
CSDC	Dial CSD	M	22.002 27.007 51.010-1	3.1.1 6.2, 6.7, 6.8, 6.9, 6.21 11.1.2	Bearer Service BS 20 non transparent/transparent in regular mode for digital interworking 9.6 kbit/s, 14.4 kbit/s. Dial command D Select bearer service type +CBST, Radio link protocol +CRLP Service reporting control +CR, V.120 rate adaption protocol +CV120
CSEC	Emergency Call	M	22.003 22.101	A.1.2 9.1, 13	Teleservice TS12 Terminals capable for emergency calls shall support emergency call without a SIM/USIM
CSIC	Connect Incoming Call	M	22.001 22.030 51.010-1	D.3, D.3.2 6.4.2.3, 6.5.5.6 11.1.1	Enable connection to an incoming call (Voice, CSD or Multimedia) Answer command A Acceptance or rejection of incoming bearer configuration
CSIR	Reject Incoming Call	M	22.001 22.030	C.3 6.4.2.3, 6.5.5	User determined user busy
CSHA	Disconnect All Calls	M	22.030 27.007 51.010-1	6.5.5 6.5 31.4.4.2	Three different operations: all held, all active or all held & active calls Hangup call +CHUP, H
CSHC	Disconnect Call	M	22.030 22.083 27.007	6.5.5 2.3.8 7.13	Disconnect a specific call Call related supplementary services +CHLD
CSTD	DTMF Tone	M	22.003 22.101 27.007	A.1.1 A.10 C.2.11, C.2.12	Capable of initiating and stopping a DTMF tone DTMF and tone generation +VTS, Tone duration +VTD
CSCI	Ciphering indicator	M	22.101	13	Ciphering Indicator
CSNM	MSISDN indication	R	22.001 22.101	D.3.1 10.7.1	The network may use a multi-numbering scheme to define the bearer capability by the MSISDN. In a multi-numbering scheme several MSISDNs are associated with one IMSI. Each MSISDN is used for a different bearer capability. If the network uses a multi-numbering scheme and the calling party has not specified the required bearer capability then the network shall use the bearer

					capability associated with the called party MSISDN.
CSDM	Dial Multimedia	R	22.002 22.101 51.010-1	3.1.2.1.3 6.2.1 11.1.2	Bearer Service BS 30 transparent for Multimedia 64 kbit/s
CSHR	Hold/Resume Call	R	22.030 22.083 27.007 51.010-1	6.5.5 2 7.13 31.3.2, 31.4.3	The call hold service allows a served mobile subscriber, who is provisioned with this Supplementary Service, to interrupt communication on an existing active call and then subsequently, if desired, re-establish communication. Call related supplementary services +CHLD
CSHJ	Join Calls	R	22.030 22.084 27.007 51.010-1	6.5.5 1 7.13 31.4.1, 31.4.4	Establish or add to a multiparty conversation Call related supplementary services +CHLD
CSHP	Split Call	R	22.030 22.084 27.007 51.010-1	6.5.5.4 7.13 31.4.2.1	Choose one party for a private communication, putting the rest of the multiparty on hold Call related supplementary services +CHLD
CSHS	Swap Calls	R	22.030 22.083 27.007 51.010-1	6.5.5 7.13 31.4.4.4	Call related supplementary services +CHLD
CSHT	Transfer Call (ECT)	R	22.030 22.091 27.007 51.010-1	6.5.5 5 7.13 31.13	Enables the served mobile subscriber who has two calls to connect the other parties in the two calls and release the served mobile subscribers own connection. Call related supplementary services +CHLD
CSLO	Connected Party COLP/COLR	R	22.081 27.007 51.010-1	3, 4 7.8 31.1	Provides the calling party with the possibility to receive the line identity of the connected party. A PLMN which does not support the COLR service shall ensure that the line identity of a subscriber shall not be displayed to the calling party unless the calling party has COLR override capability Connected line identification presentation +COLP
CSLI	Calling Line Identity CLIP/CLIR	R	22.004 22.030 22.081 27.007 51.010-1	4.1 6.5.6.2 1, 2 6.2, 7.6, 7.7 31.1	Provides the called party with the possibility to receive the line identity of the calling party. A PLMN which does not support the CLIR service shall ensure that the name/line identity of a subscriber shall not be displayed to the called party (unless the called party has CLIR override capability) Calling line identification presentation +CLIP, Calling line identification restriction +CLIR Dial command D
CSNI	Caller Name Identity	R	22.096	4	Service provides for the ability to indicate the name information of the calling party to the called party at call set-up time for all incoming calls. A PLMN which supports the CNAP service shall also support the CLIR service.
CSSF	Call Forwarding (CF)	R	22.082 27.007 51.010-1	7.11 31.2.1	This service permits a called mobile subscriber to have the network send all incoming calls, or just those associated with a specific Basic service group, addressed to the called mobile subscriber's directory number to another directory number. Call forwarding number and conditions +CCFC
CSSW	Call Waiting (CW)	R	22.030 22.083	6.5.5.2 1	This service permits a mobile subscriber to be notified of an incoming whilst the traffic channel is not available for the incoming call and the mobile subscriber is engaged in an active or held call.

			27.007 51.010-1	7.12 31.3.1	Call waiting +CCWA
CSSB	Call Barring (CB)	R	22.088 22.101 27.007 51.010-1	A.20 7.4, 7.5 33.7	Ability of the MS to prevent all MO calls except emergency calls Facility lock +CLCK, Change password +CPWD
CSSS	Call Status	R	51.010-1	33.2	Driver for MMI call progress tones/indications
CSIN	Call Notifications	R	22.030 22.082 22.083 22.084	6 1.3.5 2.3.8 1.2.1.1	Basic and supplementary service call indications
CSML	Multi-call	R	22.135		The Multicall supplementary service enables a mobile subscriber to have several simultaneous CS calls, each call using its own dedicated bearer.
CSCG	Closed User Group (CUG)	O	22.085 27.007	1 7.10	Members of a specific CUG can communicate among each other but not, in general, with users outside the group Closed user group +CCUG
CSNB	Bearer selection for single numbering scheme	O	22.001 22.101 27.007 51.010-1	D.3.1 10.7.2 6.19 11.2	Different bearer types to be routed to a single MSISDN Single numbering scheme +CSNS
CSSD	Call Deflection (CD)	O	22.030 22.072 27.007	6.5.5 7.14	This enables the served mobile subscriber to respond to an incoming call offered by the network by requesting redirection of this call to another number specified in the response Call deflection +CTFR
CSSB	Busy Subscriber (CCBS)	O	22.030 22.093 22.101	6.5.5 5 A.18	Call completion to a Network Determined User Busy (NDUB) subscriber.
CSAC	Advice of Charge (AoC)	O	22.086 27.007 51.010-1	7.16 11.3, 27.21, 31.6	Where required to indicate the total accumulated charge, the MS shall be able to display, and the SIM/USIM shall store in the ACM, the running cumulative unit charge. 51.010-1 section 11.3 checks for non advice of charge support. Advice of Charge +CAOC Several network operator handle charge processing in the network rather than using the SIM.
CSUU	User-User Signalling (UUS)	O	22.087 27.007 51.010-1	7.26 31.14	The UUS supplementary service allows the served subscriber to send/receive a limited amount of subscriber generated information to/from another user in association with a call to the user. User to User Signalling Service 1 +CUUS1

2.2 Messaging Communication Service

Messaging					
ID	Name	Req	Reference	Section	Description
MESS	Send SMS Message / SMS Command	M	22.003 27.005	A.1.3.2 3.5.1,	Teleservice TS22. SMS MO Point to point. Send Message +CMGS

			51.010-1	3.5.5 34.2.2, 34.2.4, 34.2.9	Send Command +CMGC
MERS	Receive SMS Message	M	22.003 22.101 27.005 51.010-1	A.1.3.1 A.6 3.4.1 34.2.1, 34.2.5	Teleservice TS21. SMS MT Point to point. Short message indication (Message classes 0 to 3) New Message Indications to TE +CNMI
MEAS	SMS Acknowledgement	M	22.101 27.005 51.010-1	A.6 3.4.4 34.2.3	Short message acknowledgement New Message Acknowledgement to ME/TA +CNMA
MERR	Re-enable SMS Reception	M	51.010-1	34.2.3	Re-enable SMS reception following a negative acknowledgement
MESU	Send USSD	M	22.030 22.090 27.007	6.5.2 5 6.2, 7.15	USSD is for the transparent transport of MMI strings entered by the user to the network and for the transparent transport of text strings from the network that are displayed by the mobile for user information. USSD may also be used for the transparent transport of data between the network and the mobile station. Application mode USSD is intended to be used by applications in the network and their peer applications in the MS. Dial command D, Unstructured supplementary service data +CUSD
MERU	Receive USSD Message	M	22.101	A.17	Network initiated USSD for MMI or application mode USSD
MESB	Select SMS Bearer	R	22.060 27.007	5.4 10.1.20	Select the MO SMS bearer Select service for MO SMS messages +CGSMS
MERB	Receive CB Message	R	22.003 22.101 51.010-1	A.1.3.3 A.13 34.3	Teleservice TS23.
MEFB	Filter CB Messages	R	22.003 22.101 27.005	A.1.3.4 A.14 3.3.4	This feature enables a mobile equipment to save on battery utilization, by allowing the mobile equipment to not listen during the broadcast of messages the subscriber is not interested in Select Cell Broadcast Message Types +CSCB
MEEB	Extended CB channel	R	22.101	A.15	This feature allows a mobile equipment by supporting of the extended Short message cell broadcast channel to enhance the capacity of the service
MEWT	Message waiting	O	22.101	A.26	A short message may be used to provide and indication to the user about the status and number of types of SMS messages waiting on systems connected to the PLMN

2.3 Mobility Management Service

Mobility Management					
ID	Name	Req	Reference	Section	Description
MMNS	Network selection	M			The UE shall support both manual and automatic network selection mechanisms (modes). The UE shall select the last mode used, as the default mode, at every switch-on.
MMSL	Select PLMN	M	22.011 27.007	3.2.2 7.3	International roaming is a service whereby an UE of a given PLMN is able to obtain service from a PLMN of another country. PLMN selection +COPS
MMSI	Signal strength indication	M	22.101	A.9	Signal quality +CSQ

			27.007 51.010-1	8.5 21.5.1	
MMDN	Detected networks	R			
MMNI	Network state indication	R	27.007	7.2	Network registration +CREG
MMCC	Current country	R			
MMNZ	NITZ indication	O	22.042 22.101 27.007	A.16 8.39, 8.40	NITZ provides the means for serving PLMNs to transfer current identity, time, Daylight Saving Time and the local timezone to Mobile Stations Automatic Time Zone Update +CTZU, Time Zone Reporting +CTZR

2.4 Packet-Switched (Data) Communication Service

Packet Switched					
ID	Name	Req	Reference	Section	Description
PSCB	GPRS PTP Class B	M	22.060	6.1	Point-To-Point (PTP); Internet protocol
PSSA	Service attach / detach	M	22.060 27.007	7.3 10.1.9	PS attach or detach +CGATT Attach on first context activation or upon start of the application service
PSAD	Context activate / deactivate	M	22.060 27.007	7.7, 7.8 10.1.1, 10.1.10, 10.1.11	Define PDP Context +CGDCONT Define Secondary PDP Context +CGDSCONT Traffic Flow Template +CGTFT PDP context activate or deactivate +CGACT PDP Context Modify +CGCMOD Two contexts Automatic IP details
PSND	Network deactivate	M			Network determined disconnection
PSSC	Status change	R	27.007	10.1.18, 10.1.19	GPRS status indication Packet Domain event reporting +CGEREP, GPRS network registration status +CGREG
PSMQ	Manipulation of QoS profile	R	22.060 22.060 27.007	5.6.2 7.1 10.1.4, 10.1.5, 10.1.6, 10.1.7, 10.1.8	Quality of Service Profile (Requested) +CGQREQ Quality of Service Profile (Minimum acceptable) +CGQMIN 3G Quality of Service Profile (Requested) +CGEQREQ 3G Quality of Service Profile (Minimum acceptable) +CGEQMIN 3G Quality of Service Profile (Negotiated) +CGEQNEG
PSDC	Data Counter	O			
PSNI	Network initiated contexts	O	27.007	10.1.15, 10.1.16	Automatic response to a network request for PDP context activation +CGAUTO Manual response to a network request for PDP context activation +CGANS No known use of network initiated contexts
PSPM	GPRS PTM	O			Point-To-Multipoint
PSMC	MS Class	O	27.007	10.1.17	Required if the terminal is able to support multiple classes GPRS mobile station class +CGCLASS

2.5 Equipment Service

Equipment					
ID	Name	Req	Reference	Section	Description
EQME	Retrieve IMEI	M	22.016 22.101 27.007	13 5.4	Request product serial number identification +CGSN Required to fulfil MMI USSD *#06# request
EQMD	Manufacturer ID	R	27.007	5.1	Recommended for AT command request manufacturer identification +CGMI
EQMI	Model ID	R	27.007	5.2	Recommended for AT command request model identification +CGMM
EQRV	Revision	R	27.007	5.3	Recommended for AT command request revision identification +CGMR
EQSV	Software version	R	22.016		Recommended for over the air update and network operator support
EQBC	Battery charge indication	R	27.007	8.4	Recommended for AT command battery charge +CBC support
EQLV	Loudspeaker volume	R	27.007	8.21, 8.23	Recommended for AT commands: Loudspeaker volume level +CLVL , Ringer sound level +CRSL
EQMC	Mute control	R	27.007	6.23, 8.24	Recommended for AT commands: Silence Command +CSIL, Mute control +CMUT
EQAC	HAL Accessory abstraction	O	27.007	8.2, 8.22	Scope for encapsulation of large number of device specific functionality. Optional for AT commands: Set phone functionality +CFUN, Vibrator mode +CVIB

2.6 Integrated Circuit Card Service

ICC					
ID	Name	Req	Reference	Section	Description
ICSS	SIM/USIM support	M	22.101 151.010-1	12.1.4, 12.3, 13 27.19	Phase identification Multiple USIMs per UICC
ICSI	Status information	M	22.030	6.6.5	
ICRI	Retrieve IMSI	M	22.101 27.007	12.1.1 5.6	Request international mobile subscriber identity +CIMI
ICMS	Manipulate SIM SMS entries	M	27.005	3.4.3	Read Message +CMGR, Delete Message +CMGD, Write Message to Memory +CMGW
ICSP	Manipulate SMS parameters (SMSP)	M	27.005	3.3.1	Service Centre Address +CSCA
ICRP	Retrieve SIM specific phonebooks	M	22.030 27.007 51.010-1	6.6.4 8.12 27.15, 27.18	Read phonebook entries +CPBR

ICMP	Manipulate SIM specific phonebooks	M	27.007	8.11, 8.14	Select phonebook memory storage +CPBS, Write phonebook entry +CPBW
ICPE	PIN/PUK entry	M	22.030 51.010-1	6.6.1, 6.6.3 27.14.1	
ICPA	PIN/PUK alteration	M	22.030 27.007	6.6.2 8.3	Enter PIN +CPIN
ICPI	PIN/PUK indication	M			
ICST	Retrieve SIM service table (SST)	R			Recommended for capability checking by applications
ICPN	Retrieve service provider name (SPN)	R			
ICPS	FDN phonebook support	R	22.101	A.25	
ICDN	Service dialling number (SDN) phonebook	R	22.101	A.24	
ICLN	Last number dialled (LND) phonebook	R	22.101	A.23	
ICMN	Mobile subscriber ISDN phonebook (MSISDN)	R	27.007	7.1	Subscriber number +CNUM
ICRP	Retrieve preferred networks	R	27.007	7.19, 7.21	Preferred PLMN list +CPOL, Read operator names +COPN
ICNE	Manipulate preferred networks	R	27.007	7.20	Selection of preferred PLMN list +CPLS
ICAC	UICC application commands	R	102 221 27.007	11.1 8.17, 8.18	Access to elementary files Generic SIM access +CSIM, Restricted SIM access +CRSM
ICCB	Cell broadcast message selection	O			Baseband responsible for accessing/setting field
ICIR	ICC insertion/removal	O	51.010-1	27.20	
ICCS	Retrieve customer service profile	O			CPHS SIMs only, Orange and T-Mobile UK networks
ICMW	Manipulate message waiting indicator	O			
ICAO	Advise of charge (ACMMax, PUCT, cost meter)	O	27.007 51.010-1	8.25, 8.26, 8.27 27.21.1	AoC not supported Accumulated call meter +CACM, Accumulated call meter maximum +CAMM Price per unit and currency table +CPUC
ICFP	Forbidden PLMNs	O	22.011	3.2.2.4	Read forbidden list. Baseband responsible for validation of PLMN selection.
ICPL	PLMN selector	O	22.011	3.2.2.1	Read PLMN selector. Baseband responsible for accessing/setting field.

2.7 Card Application Toolkit Service

Card Application Toolkit					
ID	Name	Req	Reference	Section	Description
CAPD	Profile download (Terminal profile)	M	102 221 102 223	11.2.1 5	Sent by the terminal to the UICC during UICC initialisation. The profile sent by the terminal shall state the facilities relevant to the CAT that are supported by the terminal.
CAUC	SIM/USIM CAT	R	22.038	5	Determination of whether the UICC is proactive or not is done via the SIM service table (SST)
CAPR	Proactive command request	R	22.038 102 223 102 221	6.2 4, 6 11.2	Proactive UICC gives a mechanism whereby the UICC can initiate actions to be taken by the terminal. Only one action can occur at a time. Commands detailed in 102 221 section 6.4 Polling shall be invalid during a call
CAPC	Proactive channel commands	R	22.038 102 223	6.3 4.11, 6.47	Proactive commands and events that allow the UICC to establish a data channel with the terminal, and through the required terminal bearer to either a remote server or a remote device.
CAFE	Fetch	R	102 221	11.2.3	Pending proactive commands are retrieved using the FETCH command
CATR	Terminal response	R	102 221 102 223	11.2.4 6.8, 6.11	Response to a proactive command
CAED	Envelope commands: Event download	R	102 221 102 223	11.2.2 4.7, 4.12	A set of events to monitor can be passed by the UICC in a proactive envelope command. The event download mechanism is used to transfer details of the event to the UICC, when it occurs.
CAMS	Envelope commands: Menu selection	R	102 223	4.4, 7.2	The menu selection mechanism is used to transfer the UICC application menu item which has been selected by the user to the UICC.
CACC	Envelope commands: Control by the UICC	R	102 223	4.5, 7.3	When this service is activated, all dialled strings are first passed to the UICC before the terminal sets up the call. The toolkit application has the ability to allow, bar or modify the call. The application also has the ability to replace a call request by another call request. Applies to voice, SMS, SS and USSD requests.
CATE	Envelope commands: Timer expiration	R	102 223	4.10, 7.4	The UICC is able to manage timers running in the terminal with a proactive command. The timer expiration mechanism is used to inform the UICC when a timer expires.
CADD	Envelope commands Data download	R	102 223	4.3, 7.5	Transferral of information to the UICC uses the envelope command

Appendix A

A.1 Application Requirements

Engine / Applications					
ID	Name	Req	Reference	Section	Description
APAR	Auto Redial Attempts	M	22.001 22.101 51.010-1	E 13 28	Support for the method of handling automatic calling repeat attempt restrictions
APBL	Blacklist handling	M	22.001 22.101 51.010-1	E 28.4	Maximum number (n) of call repeat attempts; when this number n is reached, the associated number shall be blacklisted by the MT until a manual re-set at the MT is performed in respect of that number
APFC	FDN check of dialled numbers	M	51.010-1	11.6, 27.18	If FDN is enabled in the Sim Service Table then MO calls are checked against FDN phone book
APEH	Emergency Handling	M	22.101	9.1	Multiple emergency numbers stored in the EN phonebook
APSO	Soft On/Off	M	22.101	A.11	UE completes housekeeping functions: termination of a current call, detach (where applicable) and storing required data in the SIM/USIM before actually switching off
APMS	MMI Structure	M	22.030	6	
APPE	MMI Pin Entry	M	22.030 51.010-1	6.6 27.14, 33.4	Pin entry, alteration and unblocking must be supported on the MMI. Indication of acceptance or rejection of keyed PIN; indication of blocked SIM; indication of successful unblocking of the SIM.
APSI	MMI SIM Indication	M	22.030 51.010-1	6.6.5 27.16, 33.6	It is mandatory to give the user the appropriate indication of particular SIM problems
APEM	Presentation of IMEI	M	22.030	6.7	The ME shall display the 14 digits of the IMEI in response to *#06#
APSS	MMI Signal strength	M	51.010-1	33.5	
APPI	PLMN Indication	M	22.011 22.101 51.010-1	3.2 A.3 33.3	The PLMN indicator shows in which PLMN the UE is currently registered. The UE shall contain display functions by which Available PLMNs and the Selected PLMN can be indicated (automatic or manual selection methods)
APSO	SMS overflow indication	M	22.101	A.7	An indication shall be given to the user of the short message service when an incoming message cannot be received due to insufficient available memory.
APRZ	Reception of class 0 SMS	M	51.010-1	34.2.5.1, 34.2.6	When a mobile terminated message is class 0 the MS shall display the message immediately and send an acknowledgement to the service centre irrespective of whether there is memory available. The message shall not be automatically stored in the SIM or ME.
APR0	Reception of class 1 SMS	M	51.010-1	34.2.5.2	When a mobile terminated message is class 1 the MS shall send an acknowledgement to the SC when the message has successfully reached the MS and can be stored, either in the ME or in the SIM.
APRT	Reception of class 2 SMS	M	51.010-1	34.2.5.3	When a mobile terminated message is class 2 the MS shall ensure that a message of this class is stored on the SIM.
APRP	SMS reply path	M	51.010-1	34.2.8	MS is able to send a Reply Short Message back to the correct originating SME
APNE	MMI Number Entry	M	22.030	5.2	

			51.010-1	33.1	
APND	MMI Number Display	R	22.101	A.1	
APCN	Calling Name	R	22.096	4.3.8, 4.6.2	Presentation of the incoming call number. If the calling party has activated CLIR then instead of the calling name, a privacy indication shall be provided to the called subscriber, which may be a visual display indicating "private" (or Restricted) name.
			51.010-1	31.1	
APCP	Call Progress Indications/Tones	R	22.001	F, F.2.3, F.4	Except for ring tone, all tones indicating call progress to a user shall be generated in the UE, on the basis of signals from the network where available
			22.101	A.2	UE generated tones will be generally in accordance with CEPT, ANSI T1.607, or Japan recommendations, where appropriate
			51.010-1	33.2	
APIB	In-band announcement	R	22.001	F, F.2.2, F.3	Verbal announcements will generally be reserved for situations which are peculiar to a mobile network, where users may be unfamiliar with any tone chosen to indicate conditions such as "call diversion" or "subscriber not available".
APUP	User Profile	R	22.030	6.5.6.1	For originating calls the user shall be able to choose from the available profiles, the appropriate one for the call
			22.101	12.1.2	
APCI	Country indication	R	22.101	A.3	The country indicator shows in which country the UE is currently registered.
APSN	Service Provider Name	R	22.101	A.4	Display the service provider name (stored in the SIM/USIM)
APVI	Fallback voice indication	R	22.002	3.1.2.1.3	Required if multimedia call is supported. If the multimedia circuit switched call cannot be maintain then fallback to voice is required
APDS	DTMF Separator	R	22.101	A.21	
APUE	MMI USSD Entry	R	22.030	6.5.2	If USSD supported
			51.010-1	31.10	
APKL	Keyboard lock	R	51.010-1	33.8	The ability of the MS to prevent unauthorized use by using a key or keyword protection facility. When activated the MS does not prevent the establishment of except emergency calls.
APPW	MMI SS Password	R	22.004		If any SS supported. Used for call barring but applicable to any supplementary service
			22.030	6.5.4	
			51.010-1	31.8.1	
APSC	MMI SS whilst in call	R	22.030	6.5.5.1	If any SS supported. SS key entries whilst in call
APCF	Call forwarding un/conditional (CFU/CFC) indication	R	22.082	1.3.5	If CF is supported and CFU or CFC is active: When the UE is in idle mode, an indication may be given to the user to show that CFU or CFC for voice is active.
			51.010-1	31.2.1.7	
APFI	Forwarded call indications	R	51.010-1	31.2.1.7, A3.2.2.3.1	An indication to the user that the incoming call is forwarded. Indication to the user if the MO call is forwarded by the remote party
APWI	Call waiting tone/indication	R	22.030	6.5.5.2	If CW is supported and waiting incoming call, then the user should be given an indication of the waiting call (call waiting tone)
			22.083	1.2.1	
			51.010-1	31.3.1.2	
APRI	Retrieve tone/indication	R	22.083	2.3.8	ME shall support indication of remote hold or resumption of the call by the remote party
APMI	Multi-party indications	R	22.084	1.2.1.1	ME shall support indication of remote multi-party call creation, placement on hold and resumption of the call and when a previously private communication is added back to the multi-party call.
			51.010-1	31.4	
APTI	Transfer indication	R	22.091	5.8	Indicate that call transfer has occurred to the calls being connected
			51.010-1	31.13	
APDN	Selection of directory number in SMS / USSD	R	22.101	A.22	The Short Message (Point to Point MT or MO, or Cell Broadcast), Network Initiated USSD or Network Response to Mobile Originated USSD message strings may be used to convey a Directory Number which the user may wish to call. This can be

					indicated by enclosing the directory number in a pair of inverted commas (“ ”).
APUU	SAT/USAT UI requirements	R	22.038	7	Display, keypad, menu and user control requirements
APUN	SAT/USAT network requirements	R	22.038	8, 9	Network interface and bearer support
APUM	SAT/USAT shall be able to modify MO Voice/USSD/SMS requests	R	22.038	8.2	The communication control capability is a mechanism whereby the use of communication resources is either initiated by the SAT/USAT application or modified by the SAT/USAT application subsequent to a user action
APCG	Closed user group indication	O	22.085	1.3.8.2	If the ME receives a CUG call and the calling user is a member of the same CUG, the incoming CUG call shall be indicated as such, towards the called Mobile Station, with the appropriate CUG index
APAC	Advice of charge indication	O	22.086 51.010-1	2.2.1 27.21	If AoC is supported, indicate the charge per call the Mobile station shall display the units consumed so far during the present call(s) and maintain this value until the MS is switched off or a new call set-up is attempted
APAA	Accumulated charge	O	22.086 51.010-1	2.2.1 27.21	If AoC is supported, where required to indicate the total accumulated charge, the MS shall be able to display, and the SIM/USIM shall store in the ACM, the running cumulative unit charge.
APIH	UUI handling	O	22.087 51.010-1	5.7.2 31.14	UUI message handling